

MOLLUSCA OF H.M.S. 'CHALLENGER' EXPEDITION.—Part XV.
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Fam. RANELLACEA.
MURICIDÆ.

Fam. SCALARIIDÆ.
SOLARIIDÆ.

In the following group the very peculiar form of the *Nassaria* led to its being misplaced, and so overlooked at the right time. The *Murices* are few in number, and, though not without interest, are poorly represented in the specimens which have been found. The *Scalariæ*, though beautiful as usual, are all small. A new species of the genus *Crossea* is an acquisition. The only *Solarium* is small.

Fam. RANELLACEA, *Troschel*.

NASSARIA, *Link*.

NASSARIA KAMPYLA, n. sp. (*καμπύλος*, bent.)

St. 164 A. June 13, 1874. Lat. 34° 13' S., long. 151° 38' W.
Off Sydney. 410 fms. Grey ooze.

Shell.—Thinnish, porcellaneous, white, ribbed, banded, and tubercled; with a high spire, a blunt rounded apex, rounded whorls, and a contracted rounded base produced into a very one-sided, narrow, sinistrally bent, and reverted snout. *Sculpture*. Longitudinals—there are on each whorl from 13 to 15 rather narrow ribs, which are feeble in the sutures and die out on the base; they are small, sharp, close-set, and regular on the first ordinary whorl; afterwards they become irregular and distant, and on the body somewhat obsolete; at every two thirds of a whorl one of these ribs becomes prominent as a varix, with the old mouth-edge in front: the whole surface is roughened with rather harsh lines of growth. Spirals—there are several distant bands, sharpish on the upper whorls, broad and feebly raised on the last; these rise into low rounded tubercles in crossing the ribs; one of them has a slight tendency to form an angulated shoulder some way below the suture; they extend to the base, but pass over into threads on the snout: the whole surface is further scored by fine, close-set, rounded threads; these are fretted harshly, but the intervening furrows most delicately and sharply by the lines of growth. *Colour* porcellaneous white

below the pale-chestnut surface. *Epidermis* very pale chestnut, thin, somewhat persistent, most delicately hirsute, a minute bristle rising from each of the frettings or minute tubercles formed on the spiral threads by the crossing lines of growth. *Spire* high, narrow, conical. *Apex* globose, ending in a very small depressed tip; its 4 whorls are rounded, smooth, but finely scratched with about six distant spiral lines; they are obtusely but sharply angulated above, and are parted by a narrowly tabulated suture. *Whorls* $8\frac{1}{2}$ in all, rounded, contracted above and below, rather obscurely angulated; the upper whorls are rather high and narrow, the penultimate shortish and broad, the last slightly tumid, with a rounded contracted base, produced into a very lop-sided, longish, narrow, conical, sinistrally bent and reverted snout. *Suture* impressed, irregular, horizontal between the upper whorls, but between the penultimate and the body-whorl very oblique. *Mouth* circularly oval, slightly pointed above and also below, where it runs out into the long, nearly closed, sinistrally bent canal. *Outer lip* semicircular in its curve, projecting thin and sharp in front of the labral varix, patulous except near the body, smooth within, but slightly furrowed by the external spiral sculpture; it is pinched-in at the top of the canal, down the side of which it runs in a pretty straight line. *Inner lip* semicircular, patulous, with a few obscure tubercles in front; it is continuous with the outer lip; its edge is slightly prominent on the body, markedly so on the pillar, with a furrow behind it, and an umbilical chink at the origin of the canal, where it is bent suddenly and broadly over to the right, so as nearly to cover the canal altogether. *Operculum* thin, horny, ovate, being rounded at the sides, a little narrowed behind and subtruncate in front, where at the outer corner is the nucleus, forming the centre of the lines of growth, with which it is rather strongly scored.

H. 1·67. B. 0·8. Penultimate whorl, height 0·32. Mouth, height 1 (exclusive of canal 0·6), breadth 0·45.



Operculum
of *Nassaria*
kampyla.

In this species the change of direction in the suture gives the impression of a bend in the axis, and the twisted look of the shell is increased by the distortion of the snout.

The genus under which to class this form has been selected with much hesitation. *Tudicla* has the snout sometimes distorted to the left, and has (*teste* Kobelt) an operculum with a terminal nucleus, but is characterized by a strong tooth on the pillar and a low spire.

Murex seemed suggested by the peculiarity of shape, by the almost total absence of teeth on both lips, and by the length and straightness of the distorted snout, features more or less present in various species, but especially in *M. (Haustellum) elegans*, Beck, *M. (H.) trilineatus*, Reeve. But in all the species of that group the distortion of the snout is, I think, to the right, instead of, as here, to the left. In the end I have followed the advice of Dr. Kobelt, feeling his opinion confirmed by the form of the apex and by the texture of the shell, in both of which points it resembles *Nassaria*. I am not aware that any species of that genus has been described as having an epidermis; but, unless there be cases where it is certain that no epidermis exists, its existence may be taken for granted: its absence is often due to remorseless cleaning of specimens for the market. The operculum is somewhat unlike that of *Nassaria*, and combines the characters of *Purpura*, *Buccinum*, and *Typhis*, though here again ordinary representations are untrustworthy, especially in the case of species whose opercular nucleus is at or near the edge. In these cases the body of the animal gradually separates from the old part of the operculum, which is then apt to be abraded, and thus to present features strangely unlike those of specimens which are young, or which come from deep and quiet water.

Fam. MURECIDÆ, *Troschel*.

MUREX, *Linn.*

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| 1. <i>Murex (Tribulus) acanthostephes</i> , n. sp. | 4. <i>Murex (Pteronotus)</i> , sp. (n. sp.?). |
| 2. <i>M. (T.) acanthodes</i> , n. sp. | 5. <i>M. (Ocinebra) pholidotus</i> , n. sp. |
| 3. <i>M. (Pteronotus) Cordisimei</i> , n. sp. | 6. <i>M. (O.) pyrrhias</i> , n. sp. |
| | 7. <i>M. (O.) pauper</i> , n. sp. |

TYPHIS, *Montf.*

T. phillipensis.

1. MUREX (TRIBULUS) ACANTHOSTEPHES, n. sp. (ἀκανθοστεφής, prickle-crowned.)

St. 188. Sept. 10, 1874. Lat. 9° 59' S., long. 139° 42' E. W. of Cape York; off S.W. point of Papua. 28 fms. Mud.

Shell.—Thinnish, ashy white, globose, with a short scalar spire, spinous whorls, a largish smooth waxy irregularly tipped apex (which is quite overtopped by the spines from the outer lip upward), an oval mouth, deeply crenulated outer lip, short rounded base, and a very fine produced almost straight long-spined snout. *Sculpture*. Longitudinals—there are on each whorl 3 narrow

corresponding varices, scarcely visible on the earlier whorls, and chiefly marked on the last by the series of long thin front-furrowed spines which adorn them : of these spines there are 6 (or 7 ?) on the last varix, 6 on penultimate, and 5 on the preceding one ; the highest is very little bent, and rises on each whorl high above the apex, being almost parallel to the axis of the shell ; the others, which are alternately short and long, are more or less bent, and incline upwards : there is only one spine on each varix of the spire ; these varices are prolonged down the snout ; and each is armed with about 6 long thin horizontally straight but forward-bending front-furrowed nearly equal spines, between each pair of which in front is a small, fine, procumbent thorn ; the system of triple varices begins in the course of the second regular whorl : above this point the shell is scored across by from 10 to 16 scars of old mouth-edges, which at top and bottom of the whorl project into little tubes, hollow, and in front open ; the lower row of these tubes is only visible on the first regular whorl, and is gradually buried by the overlap of the suture : between the varices there are no ribs, but only fine discontinuous undulations, with superficial regular puckerings and lines of growth, which behind the lip exhibit fine crowded laminae. Spirals—there are on the last whorl 3 strongish depressed rounded threads corresponding to the 3 largest spines ; corresponding to the smaller spines are smaller threads ; between all of these are one or more fine threads parted by shallow furrows wider than they : besides all these the whole surface is scored with very minute, rather distant, and somewhat irregular threadlets ; the highest thread, connecting the series of largest spines, forms a strongly angulated shoulder-edge on the upper whorls. *Colour* ashy white with a rufous tinge, which is strongest on the spines and the point of the snout ; the apex is waxy and subrufous ; the mouth-edge all round is porcellaneous white, with one or two chestnut specks on the outer lip, the largest and brightest being just at the top of the mouth. *Spire* rather low, conical, scalar. *Apex* consists of $2\frac{1}{2}$ rounded, more or less depressedly globose whorls, of which the earliest is always deformed as if crushed ; the others are smooth, and are parted by an impressed suture ; they terminate abruptly in a patulous and prominent mouth-edge, which has a small sinus at the top. *Whorls* 7, angularly carinated above, and with a sloping shoulder between the suture and the keel ; the upper whorls are subcylindrically conical, the last tumid and

rounded, with a very contracted convex base produced into a very long subconical snout, which is flexuous in front, where an old snout-end stands off like a splinter. *Suture* a slightly impressed line in the obtuse angle at the junction of the whorls. *Mouth* oval, with a blunt angle above and another below, where it is produced into the long, flexuous, and almost closed canal. *Outer lip* very equally arched; it rises on the body; its edge contracts, and is cut up into a series of blunt-tipped saw-teeth, the deep and narrow cuts between which run back into the front furrows of the spines; the basal one of these saw-teeth is large, flat, and very prominent. *Inner lip* spreads thinly and widely but indefinitely on the body above; on the base it separates from the body as a thin, prominent, patulous lamina, curving round to the right lower down, leaving behind it a deep chink, which continues as a furrow down the snout, where the labial lamina is bent abruptly over, so as to cover and almost close the canal. H. 3·1 (to point of spines beyond apex 3·6). B. 0·93 (to tips of spines 2·2). Penultimate whorl, height 0·25. Mouth, height 2·65 (excluding canal 0·72), breadth 0·5.

This singularly beautiful species resembles most of all *M. (T.) aduncospinosus*, Beck; but in that the direction of the spines is different, standing out much more from the axis; the texture and ornamentation of the shell are quite different, the earlier whorls not being ornamented with a double row of hollow squamous spines as here; the spire is in that much higher, the whorls less angulated, and the apex is a minute perfect cone of $3\frac{1}{2}$ whorls. In *M. (T.) ternispina*, Lam., the earlier regular whorls have somewhat similar hollow squamous spines; but there is but one row of these, and the apex is quite different. *M. tribulus*, L., though at first sight very unlike, has some very strong points of resemblance: it is a bigger, coarser shell, with shorter, fewer, and more massive spines; but the direction of all these agrees pretty closely with those in the 'Challenger' specimen; its spiral threads are enormous compared with those of the other, and are rudely tubercled; yet in neither species are there any longitudinal ribs; though the snout is very short and thick compared with that of *M. acanthostephes*, obliquely scored in connexion with the spines where the other is smooth and much more bent at the point, yet the bend has very much the same character. In *M. tribulus* the whorls are constricted below, which makes the suture dissimilar, yet the general form of the

spire is not unlike. In regard to the apex I am unable to speak with certainty. A specimen of *M. tribulus*, which Prof. v. Martens most obligingly sent me for examination from the Berlin Museum, turned out to have suffered from the effects of cleaning almost as much as those in the British Museum; so far, however, as the apex was recognizable, it seemed to have fewer whorls, and to be somewhat more conical but more amorphous, and the first regular whorls seem to have only one row of squamous tubercles, as in *M. ternispina*, Lam.

2. MUREX (TRIBULUS) ACANTHODES, n. sp. (*ἀκανθώδης*, prickly.)

Sept. 8, 1874. Cape York (Australia), off Albany Island.

3-12 fms.

Shell.—Thinnish, pale rufous, globose, with a short scalar spire, spinous whorls, a minute, regular, conically globose, glossy chestnut apex, an oval mouth, a denticulated and, on the edge, slightly crenulated outer lip, a short rounded base, and a long straightish snout. *Sculpture*. Longitudinals—there are 3 strongish corresponding varices on each whorl; they are marked by short stout diverging front-furrowed spines, whose numbers are probably incomplete (as the specimens are young), but are evidently few; these spinous varices run straight down the snout; between the varices are two tubercled ribs; the first $2\frac{1}{2}$ regular whorls present no distinction between these varices and ribs, but are crossed by about 10 tubercled ribs, on each of which above is a single short hollow spine; besides these are many, faint, very slightly raised, rounded threads. Spirals—there are on the last whorl about 20 narrow, rather raised, rounded, distant threads; others similar appear on the snout, but become obsolete in front, the latter third being glossy and smooth; the upper whorls are bisected by an angular keel, besides which, on the last whorl, there is a blunter keel where the basal contraction begins: both of these keels are accentuated by the tubercles into which they rise in crossing the longitudinal ribs and the spines on the varices. *Colour* dead white with a rufous tinge, which is stronger on the spire, on two faint bands corresponding with the keels, on the spines, and on the glossy point of the snout, where are some rich chestnut stains; the apex is also chestnut. *Spire* low, conical, scalar. *Apex* consists of 3 conically globose, rounded, glossy, chestnut whorls, of which the extreme tip is minute, rounded, and a little bent down and

inserted; they terminate abruptly in a patulous and slightly prominent mouth-edge, which is regularly curved, has no sinus, but has a concave edge. *Whorls* 8; but the shell is not full-grown; the upper ones are angulately carinated in the middle, with a sloping shoulder between the suture and the keel; they are all slightly rounded, with a very faint contraction into the suture; the last is tumid, angularly rounded, with a very contracted convex base produced into a very long snout. *Suture* angulated and slightly constricted. *Mouth* oval, rounded above, pointed below, where it runs into the long, nearly closed, linear, straight canal. *Outer lip* semicircular; its edge, which projects markedly in front of the labral varix, is somewhat cut up by slashes continuous with the furrows of the spines; a basal tooth is somewhat prominent; internally the lip is feebly toothed. *Inner lip* spreads thinly and narrowly on the base, and advances straight down the pillar as a reflexed lamina, which is abruptly turned over to the right to cover the canal, leaving behind it a chink above and a long straight furrow below. H. 1·8. B. 0·6. Penultimate whorl, height 0·13. Mouth, height 1·5 (excluding the canal 0·38), breadth 0·27.

This species is very like *M. Macgillivrayi*, Dohrn, but is certainly distinct. Like that species it has two intervarical ribs; and the texture of the shell and the short spines are similar; but the spiral threads are different, the spire is bigger, broader, and shorter, and that species has none of the hollow squamous spines which ornament the earlier whorls; the embryonic whorls of the apex are a good deal alike; but the cone in *M. Macgillivrayi* is smaller and less regular, its whorls being more rounded and parted by a deeper suture. In these respects the apex resembles *M. aduncospinosus*, Beck, from which it manifestly differs widely in other ways. In the hollow squamous spines of the earlier whorls it resembles *M. ternispina*; but the arrangement of these is different, and the embryonic apex of that species is utterly diverse. *M. Cabritii*, Bernardi (Journ. de Conch. vol. vii. 1858, p. 301, pl. x. f. 3), has a considerable general resemblance, but is not angularly carinate above, has not a scalar spire, has a shorter and coarser apex, has 4 (*teste* Bernardi, but his figure and Sowerby, in his 'Thesaurus,' pt. 33, p. 2, pl. cccxciii. f. 137, both in text and figure, say 3) intervarical ribs, and the spirals are much coarser and less sharp.

3. MUREX (PTERONOTUS) CORDISMEI, n. sp.

St. 162. April 2, 1874. Lat. $39^{\circ} 10' 30''$ S., long. $146^{\circ} 37'$ E. Off East Monceur Island. Bass's Straits. 38-40 fms. Sand.

Shell.—Thinnish, pale, fusiform, biconical, scalar, with three foliated and spinous varices, an elongated spire, a papillary tip, tubercled rounded whorls, an elongated scarcely constricted base, and a large flat snout. *Sculpture*. Longitudinals—there are on each whorl 3 foliated varices, which at the corner of the shoulder rise into a semitubular upturned and slightly reverted spine; they run out on the snout: between each two varices and nearly on a level with the spines are 3 large prominent rounded tubercles, which are somewhat produced longitudinally; the lines of growth are very slight. Spirals—besides the carination caused by the line of tubercles and spines, there is on the base a slight angulation. *Colour* pale. *Spire* rather high, conical, scalar. *Apex* consists of two largish cylindrical whorls, of which the top is angulated and obliquely truncated, and the extreme tip inserted. *Whorls* 6, of slow increase, feebly angulated, with a sloping shoulder; the last is slightly tumid and elongated, with a slightly constricted base produced into a rather large flattened snout. *Suture* linear, a little impressed. *Mouth* oblong, not patulous, rounded above, where to the right a canal runs out into the labral spine; it is pointed below, where it is prolonged into the longish canal. *Outer lip* well arched, prominent, thin. *Inner lip*—above it is continuous with the outer lip; its course is semicircular; on the body it expands with a thin edge, which in front, near the opening of the canal, rises in a thin lamina, and is then bent over to the right to cover the canal; behind it to the left the pillar is scored with the projecting laminae of the old canal-ends, which connect themselves with the longitudinal varices. H. 0.42. B. 0.2. Penultimate whorl, height 0.06. Mouth, height 0.25 (without the canal 0.11), breadth 0.07.

This little shell is very like a *Typhis*; but its spines are not pervious.

4. MUREX (PTERONOTUS), sp. (*M. dentifer*, n. sp.?).

St. 194. Sept. 29, 1874. Lat. $4^{\circ} 34'$ to $4^{\circ} 31'$ S., long. $129^{\circ} 57'$ E. 200-360 fms. Volcanic detritus.

This is a massive full-grown (?) shell, which in my list I have called *M. dentifer*, as a new species, but which is in too bad condition for detailed description. It certainly is not in the

British Museum, nor is it figured so far as I know. It is not unlike in shape to the immature shell of *M. imperialis*, Swains., from California; but its snout seems to have been long and was certainly narrow. It has 3, not 5 varices (which are rounded, high, narrow, and continuous from whorl to whorl), with 4 (or on the last segment 6) biggish rounded ribs between the varices; the old mouth-edges on the front of the varices are not like saw-teeth, but smooth and continuous; the mouth is small, oval, not large; the lip is not internally thickened; and the surface is marked with regular strong spiral threads and with fine regular lines of growth, and is not squamously fine-grained. The outer lip is scored with long, sharpish, but fine teeth; the inner lip is closely set with teeth, which are short and strong on the pillar, feeble and a little longer on the body, with a round tubercle at the very top; there is a broad glaze on the body, which separates and stands out as a strong lamina on the pillar, with a deep umbilical cleft behind it.

5. MUREX (OCINEBRA) PHOLIDOTUS, n. sp. (φολιδωτός, scaly.)

Sept. 8, 1874. Flinders Passage, Cape York, Torres Straits. 7 fms.

Shell.—Strongish, biconical, subscalar, with a shortish spire, a small apex, and a short twisted snout. *Sculpture*. Longitudinals—there are no true varices; but there are 7 rather tumid ribs, which run continuously from the apex to the snout with a slight inclination to the left; they are parted by broader furrows, which are shallow and rounded: the whole surface is covered by sinuous laminæ which rise into vaulted scales; these laminæ are about the hundredth of an inch apart, and their interstices are scored with somewhat irregular wrinkles. Spirals—there are strong round threads, with broader flat furrows, about 6 on the penultimate and about 15 on the last whorl; it is in crossing these threads that the longitudinal laminæ rise into vaulted scales. *Colour* white, but the specimens are bleached. *Spire* rather short, conical. *Apex* small. *Whorls* about 8; they are conical above, subcarinated about the middle, and cylindrical below; the last is slightly ventricose, with a conical contracted base, produced into a short, broad, flat, reverted snout, which is twisted and obliquely cut off at the point. *Suture* slightly and angularly impressed. *Mouth* oval, with a small channel above and pointed below, where it runs into the canal, which is short, open, direct, and a little turned to the right. *Outer lip* patulous,

well arched, thin on the edge, strengthened at a little distance by a varix, with 5 or 6 long, narrow, distant teeth within. *Inner lip* short and straight across the body, where it spreads thinly and indefinitely: it is angulated at the base of the pillar, which is long and very straight, and has in front 2 or 3 inconspicuous tubercles; the callus-edge is straight and sharply defined; and there is a slight umbilical depression in front between it and the cord, which twists round the point of the snout. H. 0.56. B. 0.3. Penultimate whorl, height 0.1. Mouth, height 0.36, breadth 0.17.

This species is not well represented in the specimens brought home. It somewhat resembles our British *M. aciculatus*, Lam., but is a little larger, shorter, broader, more angulated, and conical. *M. Brazieri*, Ang., has the upper whorls higher, and the last much more tumid.

6. MUREX (OCINEBRA) PYRRHIAS, n. sp. (*πυρρίας*, red-head.)

St. 75. July 2, 1873. Lat. 38° 38' N., long. 28° 28' 30" W. Fayal, Azores. 450 to 500 fms. Sand.

Shell.—Thinnish, white, oblong-fusiform, subscalar, with a moderate spire, a small chestnut-coloured tip, a short rounded base, and a small snout. *Sculpture*. Longitudinals—there are no varices; but somewhat narrow, rounded, tumid ribs, about 9 on each whorl, run continuously from the apex to the point, but become very slight on the base; their intervening furrows are broad, shallow, and rounded: the whole surface is scored by very small lamellæ, which rise in vaulted scales; in the minute interstices of these there are very slight puckerings. Spirals—there is an angulation about the middle of the whorls, which on the last is slight; this angulation is marked on the earlier whorls by a spiral thread, which rises into a little knob on the ribs; on the last whorl the whole surface (except just below the suture) is covered with close-set equal irregular rounded threads, on which the longitudinal lamellæ rise into vaulted scales; the point of the snout is a twisted cord scored with the old canal-scars. *Colour* yellowish dead-white, with a ruddy chestnut tip. *Spire* rather high, conical, subscalar. *Apex* chestnut, turbinated, small, blunt-pointed, consisting of $3\frac{1}{2}$ rounded polished whorls, which end with a distinct, prominent, reverted and sinuated edge. *Whorls* 8 to 9 in all; they are conical and shouldered above, angulated about the middle, below which they are cylindrical; the last is scarcely angulated, rather small, rounded, with a short contracted base produced into a small equal-sided snout, which

is nicked at the point. *Suture* very slight, linear. *Mouth* oblong, pointed and channelled above, and still more below, where there is a rather broad, open, oblique canal. *Outer lip* scarcely patulous, well arched, thin on the edge; there is a slight varix within, and 5 very insignificant tubercles for teeth. *Inner lip* forms a continuous curve across the body and down the pillar, which is obliquely cut off in front; the labial callus is a little thickened at the top, and is narrow, with a well-defined edge; there are one or two feeble tubercles on it in front; behind the callus at the point is a very slight and superficial umbilical depression. H. 0.46. B. 0.25. Penultimate whorl, height 0.09. Mouth, height 0.26, breadth 0.11.

This is an inconspicuous little shell, somewhat more angular and conical than *M. aciculatus*, Lam. The spire is not unlike that of *M. Edwardsii*, Payr.; but the last whorl is much smaller than in that species, and the whole sculpture is different and much more delicate. It most of all resembles a species I found in Madeira, but which is yet undescribed.

7. MUREX (OCINEBRA) PAUPER, n. sp.

Oct. 6, 1874. Amboyna. 15 to 20 fms.

Shell.—Strong, oblong, biconical, with a high, subscalar, fine-pointed spire, and an elongated base produced into a short, flat, slightly twisted, and reverted snout. *Sculpture*. Longitudinals—there are rounded, tumid, nearly straight ribs, 9 on the last and increasingly more on the earlier whorls; they originate at the suture, and extend to the snout; their tumidity, which is most marked at the periphery, angulates the whorls: the surface is scored by fine lamellæ, which run continuously and rise into vaulted scales; between these lamellæ there are fine puckerings. Spirals—there are rounded threads parted by furrows of the same breadth as the threads, but in which often a smaller thread occurs; the front of the snout has a strongish twisted cord scored with the old canal-edge scars. *Colour*: the specimen is bleached. *Spire* high, conical, subscalar. *Apex* small. *Whorls* 7 to 8; they are conical and shouldered above, bluntly angulated and cylindrical below. *Suture* a very slightly impressed line in the broad rounded furrow of the whorls' meeting. *Mouth* oblong to sub-rhomboidal, pointed and slightly channelled above; the canal in front is open and somewhat curved. *Outer lip* thickened by the external varix, but bevelled off to a narrow edge, with 7 longish small teeth within; not patulous; it is flatly arched, and is at

the canal angulated. *Inner lip* short, arched, expanded, with 2 small tubercles in front, and a very slight umbilical depression behind it; obliquely and curvedly cut off by the canal. H. 1. B. 0·52. Penultimate whorl, height 0·2. Mouth, height 0·6, breadth 0·27.

This species is represented by one specimen, in poor condition. It is somewhat like the young, or even some of the elongated forms of *M.* (or *Pseudomurex*) *Meyendorffi*, Calc.; but it is more attenuated, with a less-impressed suture, longer body-whorl, stronger and straighter ribs, and much more delicate spirals.

TYPHIS PHILLIPENSIS, n. sp.

St. 161. April 1, 1874. Lat. 38° 22' 30" S., long. 144° 36' 30" E. Off the entrance to Port Phillip, Melbourne. 38 fms. Sand.

Shell.—Thinnish, buff-coloured, oblong-fusiform, biconical, scalar, with a shortish spire, a papillary tip, variced and hollow-spined whorls, a contracted base, and a long, fine, reverted and dextrally bent, closed snout. *Sculpture*. Longitudinals—there are on each whorl about 9 ribs, which are alternately rounded and sharpish; the latter are varices, which on the last whorl run out to the point of the base; they bear 5 upturned and reverted, almost twisted, hollow spines, which are open in front; the intermediate ribs are very slight in themselves, but bear each at the periphery the straight tube of the genus (of which only the last opens through the shell), and below this, in the line of the suture's course, a prominent round-topped tubercle; the intervals are hollow and broader than the ribs: the surface is scored with sharp lines of growth, which are much distorted by the spines. Spirals—there is an obscure angulation of the shell at the upper row of tubercles; there are faint microscopic scratches on the whole surface. *Colour* buff, with obscure dark-chocolate spots at the suture, the periphery, and toward the point of the base; the spines and mouth are whiter; there is a kind of chalky bloom on the surface. *Spire* rather short, conical, scalar. *Apex* pale, smooth, papillary, blunt, rather large, consisting of two rounded cylindrical whorls, divided by a deep and very oblique suture; just above the first mouth-edge is one of the hollow tubes of the genus. *Whorls* 6, of slow increase, angulated, with a flat horizontal shoulder above, below which they are cylindrical; the last is slightly tumid, feebly bicarinated, with a contracted conical base, which is produced into a broad flat snout, drawn out to the

right into a long, fine, scarcely reverted straight tube. *Suture* very horizontal, much interrupted, slightly impressed at the bottom of the angle in which the whorls meet. *Mouth* very perfectly oval, slightly pointed in front, where there is a minute cleft in the prominent lip-edge; but beyond this the canal is entirely closed. *Outer lip* projects quite straight as a thin prominent edge considerably in advance of the last varix. *Inner lip* exactly similar to the outer lip, with which it is continuous above, and from which it is only separated below by the minute cleft of the canal; behind it is a strong furrow, bordered to the left on the body by one of the varices, and in front by the lines of vaulted spines of the old canal-ends. *Operculum* pointedly ovate, has a small, somewhat elongated, anterior terminal apex, and is scored across outside with curved, thin, imbricated, rather distant lamellæ. H. 0·72 (length of canal 0·3). B. 0·35. Penultimate whorl, height 0·08. Mouth, height (without the canal) 0·16.

This pretty little species is very like *T. Cleryi*, Petit, from New Zealand; but in that the embryonic apex is finer and more prominent, the spire is higher, the base is more inflated, the whole last varix is much stronger, and on the base the varices have no hollow spines as in the 'Challenger' species. *Typhis duplicatus*, Sow., has the embryonic apex very similar, but is higher and finer in the spire, has only three regular rows of hollow spines, and these do not extend to the base. *Murex cirrosus*, Hinds, is very like in form and general aspect, but has strong spiral threads on the whorls, is more contracted in the base, and has an open canal. Mr. Edgar Smith had the kindness to compare for me the 'Challenger' species with *T. Yatesi*, Crosse; and writes:—"In your species the whorls are not so constricted at the base, and the tabulation or upper slope is oblique. In *T. Yatesi* they are much constricted, and the tabulation is horizontal. The number of varices is the same; but the ornamentation of them is different. Crosse describes his 'peculiariter cristato-denticulatis,' whilst your's have hollow conical spines or hooks. The hollow tubes, too, in your shell are directed nearly at right angles to the axis; in *T. Yatesi* they are obliquely upward-inclined. Beneath these in yours I see a small prominence, which is not present in the other. The type, however, is a very worn shell; and it is possible that in fine specimens these prominences might exist, and the varices be more spinous; but the shape of the whorls and the direction of the tubes would remain the same."

SCALARIIDÆ, *Keferstein*.SCALARIA, *Lam*1. *S. tortilis*, n. sp.3. *S. acus*, n. sp.2. *S. dentiscalpium*, n. sp.4. *S. funiculata*, n. sp.CROSSEA, *A. Ad.**C. striata*, n. sp.

1. SCALARIA TORTILIS, n. sp.

St. 24. March 25, 1873. Lat. $18^{\circ} 38' 30''$ N., long. $65^{\circ} 5' 30''$ W. N. of Culebra Island, St. Thomas, Danish W. Indies. 390 fms. Coral-mud.

Shell.—Very long, with numerous small rounded whorls, broadish, rounded distant ribs, and close spiral threads, impressed suture, and a broad, square, smooth base defined by a strong spiral thread. *Sculpture*. Longitudinals—There are on each whorl 14 rather remote rounded ribs; they slightly diminish in number and remoteness up the spire; they cross the whorls with a very slight trend but straight course toward the right; they do not extend to the base, which is quite plain but for slight hair-like lines of growth. Spirals—there are about 9 or 10 close-set very little raised threads on each whorl; that defining the base is strong, and can be traced just above the suture up the spire. *Colour* white. *Spire* high and narrow, conical. *Apex* broken. *Whorls*—10 at least remain below the embryonic shell; they are well rounded, and of very slow increase both in height and in breadth. *Suture* deeply impressed by the contraction of the whorls above and below. *Mouth* broken, but apparently very round and oblique, a little angulated at the basal keel. *Inner lip* slight, very thin on the body, slightly reverted on the pillar. H. 0.42. B. 0.1. Penultimate whorl, height 0.06. Mouth, height 0.07, breadth 0.07.

This species has some resemblance to *S. varicosa*, G. O. Sars (*S. Wood*?), but is much narrower, with smaller and more numerous whorls; and the base is much squarer, and is not contracted. It extremely resembles *Cerithium costulatum*, Möll., but is a larger shell, and under a superficial resemblance the whole sculpture, both longitudinal and spiral, is quite different.

2. SCALARIA DENTISCALPIUM, n. sp.

St. 187. Sept. 9, 1874. Lat. $10^{\circ} 36'$ S., long. $141^{\circ} 55'$ E. Near Cape York, Torres Straits, N. Australia. 6 fms. Coral-sand.

Shell.—Small, extremely long and sharp, most delicately closely and sharply ribbed and spiralled, with rounded whorls and base and an impressed suture. *Sculpture*. Longitudinals—the whorls are crossed by an immense number of minute, sharp, very oblique

riblets, whose course is from right to left; they extend to the whole base; at irregular intervals one of these swells to a varix. Spirals—there are similar, but smaller, more numerous, and closer-set spirals, over which the longitudinal ribs rise. *Colour* porcelaneous white. *Spire* high, narrow, conical. *Apex* consists of $4\frac{1}{2}$ hardly rounded, glossy, conical whorls, parted by a scarcely impressed suture, and rising to a very minute rounded tip. *Whorls* 10 in all, convex, of regular increase; the last is small, with a well-rounded base. *Suture* rather deeply impressed, oblique. *Mouth* encircled with a strong varix, a little oblong, slightly oblique in both its planes. *Outer lip* well arched, rounded, contracted above, patulous in front. *Inner lip* narrow, thick, continuous with the outer lip. H. 0.16. B. 0.05. Penultimate whorl, height 0.02. Mouth, height 0.04, breadth 0.03.

This is a peculiarly narrow species, of a rather remarkable style of sculpture.

3. SCALARIA ACUS, n. sp.

St. 73. June 30, 1873. Lat. $38^{\circ} 30' N.$, long. $31^{\circ} 14' W.$ W. of Azores. 1000 fms. *Globigerina*-ooze. Bottom temp. $39^{\circ} 4 F.$

Shell small, compact, long, sharp, solidly ribbed, deeply sutured, with no spiral markings whatever, but a strong thread on the rounded base. *Sculpture*. Longitudinals—there are on the last whorl about 17, and on the first regular whorl about 15, strong, raised, rounded ribs, which cross from suture to suture in the line of the axis, and extend, though less strongly, to the base. Spirals—there are none except one sharpish thread, which comes out exactly at the upper corner of the mouth, and encircles the base. *Colour* ivory-white. *Spire* high, narrow, conical. *Apex* consists of three brownish-yellow, glossy, broad, cylindrical whorls, of which the first is very short and rounded, the second short and slightly conical, and the third high and cylindrical; they have very fine, microscopic, hardly raised, flexuous, longitudinal threads, and still finer spirals. *Whorls* 12 in all, very much constricted at the suture both above and below, and somewhat flattened in the middle; after the apex they are of very slow and regular increase; the last is smallish, with a rounded base, within the contraction of which lies the basal thread. *Suture* wide and deeply impressed, oblique. *Mouth* broken. H. 0.22. B. 0.06. Penultimate whorl, height 0.037. Mouth, height 0.044, breadth 0.04.

There is another *Scalaria* from St. 122, off Pernambuco, 350 fms., which extremely resembles this, but is quite distinct, being

spiralled between the ribs, and having a very small, conical, blunt embryonic apex, consisting of from 4 to 5 whorls.

4. *SCALARIA FUNICULATA*, n. sp.

St. 122. Sept. 10, 1873. Lat. $9^{\circ} 5' S.$, long. $34^{\circ} 50' W.$ Off Pernambuco. 350 fms. Mud.

Shell.—Small, rather stumpy, with strongish pinched-out ribs, and compact crimped spirals; the base is broad, flat, and encircled with a strong spiral thread. *Sculpture*. Longitudinals—on the last whorl there are about 10, on the earlier whorls rather more, strongish ribs, which have broad bases and narrow crests; they run very straight down the spire, but have each a minute twist to the right at the top, and almost inappreciably to the left at the bottom of the whorls; they do not extend to the base. Spirals—the whole surface is covered with small, flattened, close-set threads, only separated by extremely minute scratches; these threads are finely crimped, which gives them the rope-like appearance under the microscope from which the name of the species is derived. *Colour* darkish. *Spire* high, conical, with a broadish base. *Apex* broken. *Whorls*—8 to 9 remain; they are regularly convex; the last is broadish, short, with a broad square flat base defined by a strongish thread round the outside. *Suture* narrow, impressed, rather oblique. *Mouth* perfectly round. *Outer lip* prominent beyond the last rib, rounded, blunt. *Inner lip* very short on the body, which it crosses with a small shelf, of which there are traces all round the mouth within the outer edge. H. 0.23. B. 0.085. Penultimate whorl, height 0.037. Mouth, height 0.04, breadth 0.04.

I have a *Scalaria* of my own dredging at Madeira which extremely resembles this species, but is distinct. It is narrower, the crimping of the spirals is finer, the longitudinal ribs extend to the base, which is rounded and has the basal thread much more within the contraction of the basal rounding than is the case here.

CROSSEA, A. Ad.

CROSSEA STRIATA, n. sp.

St. 187. Sept. 9, 1874. Lat. $10^{\circ} 36' S.$, long. $141^{\circ} 55' E.$ Near Cape York, N. Australia. 6 fms. Coral-sand.

Shell.—Very small, white, turbinata, spirally striated, with a sub-scalar spire, a minute rounded apex, tumid last whorl, and a small strongly bordered umbilicus. *Sculpture*. Longitudinals—there

are microscopic lines of growth which gather into puckers below the suture. Spirals—there are furrows broadish and square-cut, parted by flat raised surfaces of about twice their breadth; these extend to below the periphery, but not to the base, the most of which is smooth; round the umbilicus is a high raised thread, which relatively to the size of the shell is enormous. *Colour* porcellaneous white. *Spire* raised, subscalar. *Apex* very small, tabulated, with the extreme tip just visible. *Whorls* 4, well rounded, a very little tabulated below the suture; the last is tumid. *Suture* strongly marked, but hardly impressed. *Mouth* round, but a little gibbous, bluntly pointed above. *Outer lip* scarcely patulous, well arched, thin. *Inner lip* regularly curved from the corner of the mouth to the point of the pillar, which is arched, with a thin inner edge parting the mouth from the umbilicus and joining the outer lip, while round the umbilicus twists the strong marginal cord which runs out into a strong blunt tooth at the tip of the pillar. *Umbilicus* deep, small but strongly marked. H. 0·06. B. 0·05. Penultimate whorl, height 0·01. Mouth, height 0·03, breadth 0·028.

This species differs from *C. bellula*, A. Ad., in being higher, with a smaller and more scalar spire, and a more elongated base. Its smaller size, higher and narrower form, striated sculpture, and strong projecting pillar-point distinguish it markedly from *C. concinna*, Ang., from Port Jackson, Sydney.

Fam. SOLARIIDÆ, *Keferstein*.

Gen. SOLARIUM, *Lam.*

SOLARIUM (TORINIA) ROSULENTUM, n. sp.

St. 163 A. June 3, 1874. Lat. 33° 51' 15" S., long. 151° 22' 15" E. Off Port Jackson. 35 fms. Rock. Bottom temperature 63° F.

Shell smallish, ruddy yellow, with bright crimson spots, flat, with a slightly raised conical and scalar spire, rounded carinated whorls, and a large, open, pervious umbilicus defined by a sharp thread and rayed with sharp diverging lamellæ. *Sculpture*. Longitudinals—the surface of the shell is beset with small, close, procumbent lamellæ; these below the suture and in the umbilicus are much rarer and more prominent than elsewhere. Spirals—there are sharpish rounded spiral threads on all the whorls; those on the earlier whorls are three or four, and are subequal;

on the last there are above the periphery about four larger, with smaller ones between, while on the base they are numerous, both without and within the umbilicus; one in particular in the middle of the base is strong, and another, within the funnel, is nearly as much so; these spirals are faintly crossed by the longitudinal lamellæ; but within the umbilicus the lamellæ form minute spines or tubercles on the crests of the spirals. *Colour* a cindery yellow with a ruddy tinge, and flecked above, especially on the highest spiral, with brilliant little crimson spots*; the upper part of the spire is bright yellow, the apex pale. *Spire* depressed, conical, scalar. *Apex* rounded, polished, the tip scarcely prominent; the embryonic tip seems, as usual, introverted. *Whorls* 5, of very gradual and regular increase, with a flat, horizontal or slightly sunken shoulder below the suture. *Suture* distinct, being angulated and a very little impressed. *Mouth* round, very oblique, small. *Outer lip* thin, very slightly patulous, with a very feeble white callus within. *Inner lip* has a very short attachment to the body, is rounded, and a little patulous. H. 0.16. B. 0.24. Penultimate whorl, breadth 0.05. Mouth, height 0.09, breadth 0.09.

This very pretty little species is not like any other I know, and rather recalls in form some of the *Solariella* group of *Trochus*; but the mouth, inner lip, texture of shell, and apex are unmistakably those of *Solarium*. There are in this specimen, on the last whorl especially, some minute stumpy setæ, which are probably embryonic seaweed. They are too irregularly arranged to make it likely they should be traces of any epidermis.

* These suggested the name.
